

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000558**Date Inspected:** 30-Sep-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Xu Bing**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** 89 and 144 meter mock-up**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Sherri Brannon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and/or discovered the following.

114 Mockup Interior Splice Assembly (Sub Assembly-A58):

QA Inspector Brannon randomly observed ZPMC qualified welder Mr. Chang Chuancang ID #053870 3316 groove welding fill passes at weld joint #2 side B for the interior splice plate assembly longitudinal stiffener plate mp268 to A58. Mr. Chuancang was observed welding in the 2G (horizontal) position utilizing flux cored arc welding (FCAW) process with a 1.4mm diameter electrode, filler metal brand Supercored 71H, class E71T-1 semi automatic. QA Inspector Brannon observed the ZPMC QC Inspector Xu Bing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon also verified pass #19 and pass #28 and found the preheat temperature to be a minimum of 110°C and measured the welding parameters to be 285 amps, 30.5 volts, a travel speed of 312 mm/min and a shielding gas flow of 22L/min. Welding parameters measured by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-T-2232-TC-U5-F, Revision 1.

114 Meter Interior Splice Assembly (Sub Assembly-A75):

QA Inspector Brannon randomly observed ZPMC qualified welder's Mr. Li Dong ID #066256 and Mr. Guo Dengyun ID# 037997 tack welding at weld joint# 1 & 4 for the interior splice assembly longitudinal stiffener plates p920 to A75 and p1032 to A75 respectively. Mr. Dong and Mr. Dengyun was observed welding in the 2F (horizontal) position utilizing shielded metal arc welding (SMAW) process with a 4.0mm diameter electrode, filler

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metal brand TL-508, class E7018 manual. QA Inspector Brannon observed the ZPMC QC Inspector Xu Bing verifying that the welding parameters and pre-heat were in accordance with the Welding Procedure Specification (WPS). QA Inspector Brannon also verified the preheat temperature to be a minimum of 110°C and measured the welding parameters to be 170/160 amps respectively. Welding parameters measured by QA Inspector Brannon appear to be in general compliance with the approved WPS-B-P-2212-TC-U5b, Revision 0.

89 Meter Mockup:

QA Inspector Brannon randomly observed ZPMC personnel drilling 30mm diameter bolt holes in various longitudinal stiffener plates for the 89 meter mock-up.

114 Meter Mockup, skin plate E (UT-relevant indication 500mm in length):

QA Inspector Brannon randomly observed ZPMC personnel at skin plate E removing an ultrasonic testing (UT) relevant indication 500mm in length found by ZPMC by method of carbon air gouging on weld joint #3, side A, sub assembly MA109. QA Inspector Brannon informed Task Leader Jimmy Cochran of the above noted indication.

QA Inspector also, Informed Bureau Veritas Mr. Tan Da of the above. The length of the indication was found to exceed the project special provision definition of minor weld repairs for the said indication exceeded 10% of the total weld length. A Caltrans Non Conformance Report (TL-15) was generated to document the aforementioned indication.

114 Meter Mockup-skin plate C (sub assembly MA111):

QA Inspector Brannon randomly observed ZPMC ultrasonic testing (UT) technicians performing ultrasonic inspection on the complete joint penetration welds for skin plate C weld joints #5, 8 & 11 sub assembly MA111. ZPMC QA Mr. Fu Jun stated to QA Inspector Brannon that indications were found in weld joints #5, 8 & 11.

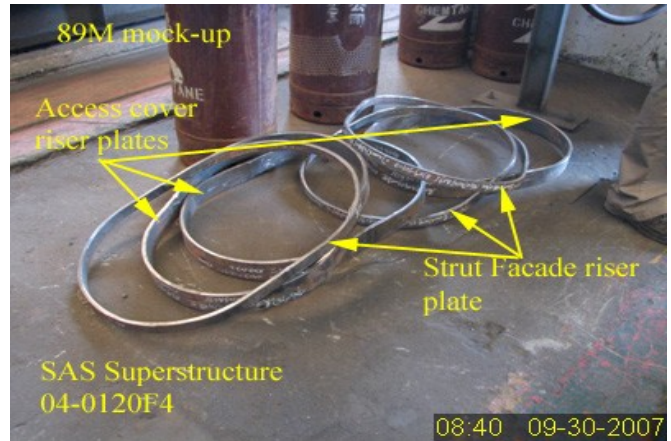
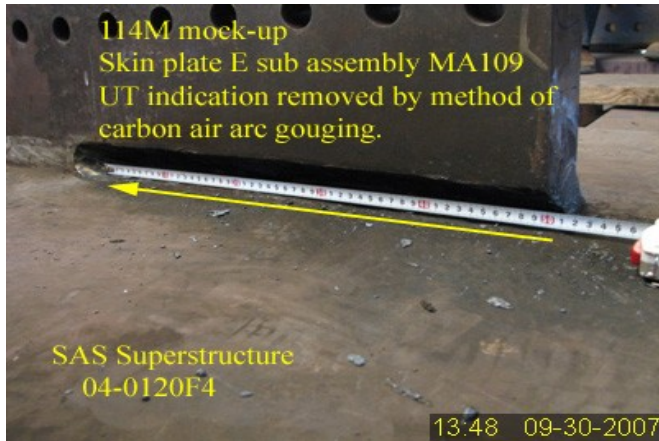
NDT (VT/MT): QA Inspector Brannon observed ZPMC NDT technician Mr. Zhou Dongyun, at 114M mockup-skin plate D sub assembly-MA113 weld joint #3 & 4 performing magnetic particle testing (MT) on the root pass weld for weld joint #3 & 4, one hundred percent of the root weld was inspected by the NDT technician. QA Inspector Brannon performed visual inspection (VT) and magnetic particle testing (MT) on the root pass weld for weld joint #3 & 4. See Caltrans Magnetic Particle Test Report, TL-6028 dated September 30, 2007 for additional information.

NDT (VT/MT): QA Inspector Brannon observed ZPMC NDT technician Mr. Cai Xinxin, at 89M-mockup access cover (riser plate) sub assembly-MA114 and 89M-mock-up strut façade (riser plate) sub assembly-MA37, weld joint #1A, 1B, 2A, & 2B MK#p1098 and weld joint#1A and 1B MK#1099 performing magnetic particle testing (MT) on the completed CJP weld, one hundred percent of the weld was inspected by the NDT technician. QA Inspector Brannon performed visual inspection (VT) and magnetic particle testing (MT) on the completed weld for weld joint #1A, 1B, 2A, & 2B MK#p1098 and weld joint#1A and 1B MK#1099. See Caltrans Magnetic Particle Test Report, TL-6028 dated September 30, 2007 for additional information.

The following digital photograph below illustrates observation of the activities being performed.

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Summary of Conversations:

As stated within the report.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Brannon, Sherri

Quality Assurance Inspector

Reviewed By: Cuellar, Robert

QA Reviewer